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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,424	07/27/2000	Mamoru Uchida	1403-0203P	2636

7590 07/26/2005

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EXAMINER	
MAKI, STEVEN D	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/627,424	UCHIDA ET AL.	
	Examiner	Art Unit	
	Steven D. Maki	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☒ Claim(s) *2* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5-16-05 has been entered.

2) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3) **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusumoto (JP 62-191204) in view of Japan 209 (JP 7-61209) and Japan 214 (JP 10-129214) and optionally German 792 (DE 3122792).**

Kusumoto discloses a **tire for use on snow and ice** having a ground contacting tread including **rubber** and **radially oriented non-metallic short fibers**. Kusumoto teaches that the tire has good skidproofing effects. Kusumoto does not specifically recite the hardness of the ground contacting tread. However, it would have been obvious to one of ordinary skill in the art to provide the rubber of Kusumoto's tread with the claimed hardness of 45-75 degrees (a relatively low hardness) since Japan 209, also directed to a tire for use on snow and ice, suggests using a rubber having a hardness of 50-60 (a relatively low hardness) to avoid excessive wear and improve grip on snow and ice (paragraph 16 off machine translation). Japan 209 therefore strongly

motivates one of ordinary skill in the art to use the claimed hardness in Kusumoto's tread so as to improve grip on snow and ice of Kusumoto's tire. Improvement in grip on snow and ice is desirable for Kusumoto's tire since it is for use on snow and ice.

As to the type of short fibers, it would have been obvious to use glass or carbon fibers having a length of 0.1-5 mm and an average diameter of 1-100 micrometers in Kusumoto's tread in view of Japan '214's teaching to use short fibers having a length of 0.2-1.0 mm (290-1000 micrometers) and a L/D of 200-2000 (column 3 paragraph 19) so that the short fibers can be fully radially oriented. As to the fibers being glass fibers or carbon fibers, one of ordinary skill in the art would readily appreciate that glass fibers or carbon fibers would improve braking performance. See Kusumoto (abstract, translation) and optionally German '792 (abstract). As to German '792, the following information was obtained during a partial oral translation of page 9 of German '792: The tread has a plurality of carbon fibers, which extend perpendicular of the tread and are embedded therein. The individual fibers can be woven into a fabric like mat and can be fastened therein or may form parts thereof with the mat being inserted or placed in the rubber mixture for the tread.

As to the amount of short fiber used and E1 / E2 (this ratio being descriptive of a small amount of fibers being radially oriented), it would have been obvious to use 3-20 parts short fiber in Kusumoto's tread such that the tread defines the claimed ratio E1/E2 of 1.1 to 4 since (a) Kusumoto, directed to a tire for use on snow and ice and having **radially oriented short fibers**, teaches using 5-60 parts short fiber in the tread, (b) Japan 209, directed to a tire for use on snow and ice, suggests limiting the amount of

short fibers in a ground contacting portion of a tread to 2-10 parts to avoid inferior abrasion resistance and (c) Japan 214 teaches that when using **radially oriented short fibers**, care should be taken to use less than 30 parts short fibers because if more than 30 parts short fibers is used, the hardness of the tread will be high and the grip nature will fall. (paragraph 20 of machine translation).

Allowable Subject Matter

4) **Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

Although (a) it is known per se in the tread art to obtain radially oriented fibrous material using a folding technique as shown by Japan 603 (JP 3-258603) and Chang (WO 98/13185) and (b) Kusumoto teaches radially oriented fibers in a tire tread for use on snow and ice, applicant has shown unexpected results for the tire of claim 2 which requires (1) 3-20 parts glass fibers or carbon fibers having an average fiber diameter of 1-100 micrometers and an average length of 0.1-5 mm, (2) a hardness of 45-75, (3) $1.1 \leq E1/E2 \leq 4$ and (4) the tread being made by rolling a specified rubber composition by a calendar roll to generate a sheet and repeatedly folding the sheet. Compare Ex. No.1 and Ex. No. 2 in the original disclosure with (a) comparative example 4 in the original disclosure, (b) Experiments 1, 2 and 3 of the 132 declaration filed 5-28-03 and (c) experiments 1, 2, 3 and 4 in the 132 declaration filed 3-12-04. Invention Example 1 (glass fiber) and Invention Example 2 (carbon fiber), which have fiber amount, fiber length, fiber diameter, ratio E1/E2 and hardness within the claimed ranges

and were made using method of figure 2 and have breaking performance of 125 and 126 respectively and *abrasion resistance of 100 and 103* respectively. Comparative example 4 in the original disclosure shows that a tire having an amount of glass fiber outside the claimed range and an E1/E2 ratio outside the claimed range has an *abrasion resistance of 92, which is less than 100.* Experiment 1 of the 132 declaration filed 5-28-03 shows that when the ratio E1/E2 is within the claimed range, but the amount of fiber is outside the claimed range, the *abrasion resistance is 93, which is less than 100.* Experiment 2 in the 132 declaration shows that when the tread was formed using the folding step and the amount of fiber is within the claimed range, but the ratio E1/E2 is outside the claimed range, *the braking performance is 92 and the abrasion resistance is 99 (both of which are less than 100).* Experiment 3 in the 132 declaration filed 5-28-03 shows that when the tread was formed using the folding step and the fiber length, fiber diameter, fiber amount and ratio E1/E2 are within the claimed ranges, but fiber type is not glass fiber or carbon fiber, *the breaking performance on ice is 90 and the abrasion resistance is 96 (both less than 100).* Examples 1-4 of the declaration of filed 3-12-04 shows that when the fiber is glass fiber or carbon fiber, the fiber length, fiber diameter, fiber amount, ratio E1/E2, and hardness are within the claimed ranges, but the method used to form the tread is not figure 2, *the abrasion resistance is 94, 95, 95 and 92 respectively (all less than 100).*

Remarks

5) Upon reconsideration and in view of the declaration filed 4-18-05 and applicant's arguments filed 5-16-05, the scope of enablement rejection set forth in paragraph 3 of the office action dated 11-16-04 has been withdrawn.

With respect to claim 1, applicant's arguments filed 5-16-05 have been fully considered but they are not persuasive. Applicant argues that the cited references neither describe nor suggest a studless tire having excellent braking performance on ice and abrasion resistance. This argument is persuasive as to claim 2 (see above indication of allowable subject matter). However, this argument is not persuasive as to claim 1 because the 132 declaration filed 3-12-04 shows that when the method of figure 2 is not used, abrasion resistance decreases.

6) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki
July 23, 2005

Steven D. Maki 7-23-05
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